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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/650,193

08/28/2003

Koichi Ohto

Q77191

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23373

7590

08/01/2006

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/650,193

Applicant(s)

OHTO ET AL

Examiner

Alexander O. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15-17, 51 and 213-218 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 51 and 215-218 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 8 to 13, 213 and 214 is/are rejected.
- 7) ☒ Claim(s) 3-7 and 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/281,321.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Serial Number: 10/650193 Attorney's Docket #: Q77191

Filing Date: 8/28/03; claimed foreign priority to 5/8/02; 10/17/03; 5/5/03

Applicant: Ohto et al.

Examiner: Alexander Williams

This application is a continuation in part of application # 10/281321, filed 10/28/2002, now abandoned.

Applicant's Amendment filed 5/12/06 to the election of Species I, figures 5A-8C (claims 1 to 17 and 51), filed 8/11/04, has been acknowledged.

Claims 14, 18-50 and 52-212 have been cancelled.

The disclosure is objected to because of the following informalities: Applicant's related patent application information to the parent application # 10/281321, filed 10/28/2002 should be updated.

Appropriate correction is required.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Initially, it is noted that the 35 U.S.C. § 103 rejection based on an insulating underlayer and a first insulating interlayer deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Claims 1, 2, 8 to 13, 213 and 214 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armbrust et al. (U.S. Patent # 6,251,775 B1).

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1. For example, in claim 1, Armbrust et al. (figure 1) show a semiconductor device comprising: an insulating underlayer (**insulator, lower portion of 10**); a first insulating interlayer (**insulator, upper portion of 10**) formed on said insulating underlayer, said first insulating interlayer having a groove (**in which 11-13 sits within 10**); a first silicon-diffused metal layer **13** therein buried in said groove; and a first metal diffusion barrier layer (**14, (Cu diffusion barrier) see column 4, lines 45-51**) formed on said first silicon-diffused metal layer (**13, silicide layer**) and said first insulating interlayer (**insulator, upper portion of 10**).

Therefore, it would have been obvious to one of ordinary skill in the art to use the insulating underlayer and the first insulating interlayer as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claims 3-7 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 51 and 215-218 are allowed.

Response

Applicant's arguments filed 5/12/06 have been fully considered, but are not found to be persuasive in view of the modified grounds of rejections detailed above.

Applicant's arguments in the remarks are not found to be persuasive. Applicant stated that "Armbrust fails to disclose that the structural location of the silicide layer 13 is formed on the wiring pattern and the first insulating interlayer. Instead, Armbrust discloses that the silicide layer 13 is formed on the wiring pattern 1, but that the silicide layer is formed on the wiring before or under the first insulating interlayer 14 (see figure 1), and Armbrust discloses that "a series of insulating layers is then formed about the silicide layer 13" (see column 4, lines 45-47). Applicant's claims an insulating layer and a first insulating interlayer formed on said insulating underlayer. Armbrust show this in one insulator layer 10. Since, the specifics or not difference is claimed between the two insulating layers, Armbrust insulating layer 10 can read on both of the claimed layers with a groove formed within the insulator layer. Applicant further claims a first silicon-diffused metal layer buried in said groove. Armbrust show a silicide layer 13 as

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this layer. Webster defines a silicide as a compound of silicon with another element or radical. Webster defines a metal as one of a category of electropositive elements that are usually whitish, lustrous, and like the transition metals, typically ductile and malleable with high tensile strength: an alloy of two or more metallic elements. Since the definition of a silicide and a metal reads on a silicon-diffused metal layer, Armbrust's silicide layer 13 reads on this limitation of the claimed structure. Armbrust's first metal diffusion barrier layer 14 formed on said first silicide layer 13 and said first insulating interlayer (upper portion of 10 of Armbrust), therefore, Armbrust continues to read on the claimed structure.

Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

The listed references are cited as of interest to this application, but not applied at this time.

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Field of Search	Date
U.S. Class and subclass: 257/750,750,758,257,774,762,759,774,751,635,636,640,7 52,e23.144,e23.167,e23.145	11/1/04 5/14/05 1/23/06 7/22/06
Other Documentation: foreign patents and literature in 257/750,750,758,257,774,762,759,774,751,635,636,640,7 52,e23.144,e23.167,e23.145	11/1/04 5/14/05 1/23/06 7/22/06
Electronic data base(s): U.S. Patents EAST	11/1/04 1/23/06 7/22/06

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'A. Williams', written in a cursive style.

Alexander O Williams
Primary Examiner
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AOW
7/22/06